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CASES OF OPERATION FOR ARTIFICIAL PUPIL.

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[Communicated for the Boston Medical and Surgical Journal.]

THE unfortunate situation of the patient who is always blind, at least as to all useful vision; and in general can only discern light as the healthy eye discerns it with the lids closed; and having his only chance in an operation which is perhaps the most difficult to perform, and most uncertain in its results, of all ophthalmic surgery, renders everything connected with the subject of artificial pupil of such interest, that any suggestion which experience furnishes is worth some notice.

From this circumstance, and from the conviction that there are many cases now existing which might be relieved, the following cases are published.

CASE I.—William Oates, 48 years of age, from China, Maine, applied to the Infirmary, and was received as a house patient, July 3d, 1840. He stated that his eyes were good with the exception of three several injuries occurring at the age of 6, 12, and 32 years, at each of which times he had a temporary inflammation, from which he perfectly recovered, until about four years since, when the sight of the right eye began to fail him, unaccompanied with pain or apparent inflammation, and continued to fail for one year; at which time he had a fever accompanied with delirium, and, as he well remembers, a swelling on the side of the face. He does not know if his eye was inflamed at this time. On his recovery he found he had lost his sight, retaining only the perception of light.

The following was the state of the eyes at the time of his application. The appearance of the right eye was not quite as bright as natural; in other respects it looked well. His vision with this eye was not distinct. He had had floating *muscæ* for several years. He thinks that the disease of the left was affecting the right eye, which was the cause of his application for relief. The left eye had closure of the pupil upon an adventitious membrane or portion of capsule. The iris was smooth on the surface, and had not lost its fibrous appearance. Its color was of a reddish brown, and darker than its fellow. There was no other appearance of disease in the globe. The application of stramonium produced no effect upon the pupil or vision. The perception of light was about as much as seen through the closed lids of the healthy eye.

In this condition of things I determined to attempt a removal of the

capsule with a cutting needle passed through the sclerotic, and if this was not successful to operate afterwards for artificial pupil. Accordingly I operated for him on the 26th of July 1840. I was enabled to detach the capsule partially, but not entirely. No inflammation followed this operation, and his vision was somewhat improved for a short time, but again relapsed so much as to leave only sufficient sight to confuse that of the other eye. He returned again on the 8th of November, 1840, for further assistance, and on the 14th, having previously prepared him for the operation, I operated for artificial pupil. The patient lay upon his back on the table, the upper lid being held by Dr. Geo. Bethune, without the use of the speculum. The lower lid and globe I controlled myself. With the cornea knife I made a section of the cornea downwards, a little more in extent than I usually do in extraction of the lens. This I did that I might have more room in case there should be occasion to remove a portion of the iris. The upper lid was allowed to fall immediately on the completion of the section. A small quantity of the vitreous was observed to escape with the discharge of the aqueous humor, by which it was evident that the iris was ruptured. After a short rest the eye was examined, when I found that the iris was rent from the place of the natural pupil about two thirds towards the outer side. This opening had dilated to an oval form, as large as the natural pupil. On the inner part there was seen a small, circular, white body, about one line in diameter, loose at the new pupil, but attached to the uvea on the inner side. With the ring forceps, carefully introduced, I detached this membrane and withdrew it from the globe. The pupil now dilated still more, becoming once and a half the size of the natural pupil, and was of an oval form, occupying the place of the natural pupil and half the distance towards the outer canthus. No accident accompanied the operation, which was effected with very little pain to the patient. He said he could see the objects about him at its completion. The eye was dressed with a compress wet with cold water, and confined with a single fold of bandage. The eye was quite easy, and the patient free from constitutional affection for three days. At this time the bandage was removed, and on examining the eye it was found that the incision of the cornea had entirely united; the cornea was somewhat hazy; the pupil still remained, but there was in it a deposit of lymph. Leeches were directed to the temple, and a grain of calomel given night and morning.

On the fifth day the cornea was more opaque, and threatening to break away at the incision. He had had but little uneasiness in the eye, but more pain on the side of the head. More leeches were applied, and the calomel with opium given at night, but omitted in the morning.

The fourteenth day. The patient had been improving, with occasionally some pain at night. The cornea had become quite clear; a considerable pupil was seen, free from lymph, of the size and figure before described. His vision was improving. He could see objects, but they appeared hazy. A slight zone was still seen around the cornea. His eye improved in clearness and strength until the thirty-fifth day after the operation, giving every indication of a perfectly successful result. At that time there was a deposit of lymph at the upper and inner angle of

the pupil—the seat of the adventitious membrane; the pupil began then to contract at that part, and as the lymph was deposited continued to close from this part nearly across the new pupil, leaving but a small opening in the iris, which was dim in its appearance. This closure was slowly accomplished in about fourteen days, notwithstanding every effort to prevent it by depletion and the use of mercury. He was discharged on the 22d of January, 1841, without improvement.

CASE II.—Mark Langley, from Brigham, Maine, æt. 42, applied May 28, 1841. He had an inflammation in the left eye, occasioned by an injury to the eye about two years since. This extended to the right eye, and soon occasioned blindness of both eyes. At his application the right eye was free from redness and uneasiness. The pupil was nearly closed, but not quite. What of pupil remained was filled with a white membrane, apparently capsule, wholly adherent to the uvea. The iris was lighter colored than usual, and somewhat fibrous. It was doubtful if the iris had lost its contractile power. As the disease commenced with acute inflammation, and the iris was discolored, it seemed most probable that it would not contract if divided. Having previously prepared the patient by some depletion, I operated for artificial pupil on the right eye on the 31st of May. The patient being placed as in the former case, and the upper lid supported by Dr. R. W. Hooper, I made a section of a full half of the cornea, after which I found the iris ruptured in the place of the natural pupil, towards the inner side, about one third of the diameter of the iris. This appeared to be mostly occupied by a white membrane. Seizing the loose end of this with the ring forceps, I separated it from the uvea and withdrew it from the eye. In doing this I found a hard, shrivelled lens, about one third of the natural size, adherent to it on the back side. When this was removed a large oval pupil appeared in the centre, and on the inner side of the iris. He could discern objects partially after the operation. The dressing and subsequent treatment were much as in the former case. He had scarcely any uneasiness or redness in the eye. The cornea healed very readily, but there appeared, soon after the operation, a low degree of inflammation in the iris, which in three weeks closed the pupil, and he was discharged the last of August without improvement.

From my observation of these two cases, and their failure after the formation of so large an artificial pupil, so happily accomplished, I was convinced that the chance of success was greatly diminished by the extent of the division of the cornea. It was also apparent to me that the iris more frequently retained its contractile power than might be presumed either from its appearance or from the previous history of the disease. I therefore determined, in similar cases, to attempt the division of the iris through the cornea, with the iris knife. The only objection to this which occurred to me before the attempt, was from the shape of the instrument; which, as it must be introduced with the flat sides towards the iris and cornea, might not be turned to carry the cutting edge towards the iris, without at the same time cutting the cornea so much as to produce a discharge of the aqueous humor, and prevent a division of the iris. A case soon occurred, however, to test the practicability of the operation, as follows.

CASE III.—Joseph Nelson, from Clinton, Maine, 54 years of age, applied at the Infirmary, June 25th. He appeared to be a healthy and temperate man, of a phlegmatic temperament. He had been injured by blasting rocks some time since, and had now recovered from all inflammation or irritability of the eyes. The appearance of the eyes was—the right eye was reduced in size and altered in figure; the cornea flattened and leucomatous over its whole extent, making entire destruction of this eye. The left globe was of natural size and firm. This was also opaque over four fifths of the cornea. The leucoma was prominent and dark colored in spots, showing the union of the iris with the cornea. A small section of the cornea was clear at the lowest part, through which about a fifth or sixth of the inferior part of the iris could be seen. This appeared fibrous, with the fibres on the stretch towards the anterior synechia, which commenced near the bottom of the leucoma. The space between the iris and cornea, at its more healthy part, was extremely small. The two parts appeared almost in juxtaposition. The degree of vision, according to the expression of the patient, was as much as is seen through the lids of the healthy eye. The case, of course, was an exceedingly unpromising one; and indeed had been fully condemned before I saw him. The only chance seemed to be by incision through the cornea with the iris scalpel, as I had formerly devised. Accordingly, on the 3d of July, I performed the operation for koretomia as follows.

The patient lying on his back on the table, and the upper lid supported by an assistant, I entered a small iris knife through the bottom of the opacity, with the cutting edge towards the inferior part of the globe, and the flat side in front. I then brought the point in front of the iris, and carried it across to the corneal edge on the opposite side, and entered the point through the edge of the iris, at the same time turning the cutting edge inwards. In doing this I was careful not to advance the instrument, for fear of wounding the ciliary body. With a back stroke of the knife, I then cut the iris until I saw a clear black opening, as large as I thought the case would admit. The instrument was withdrawn as it was entered. There was no escape of aqueous humor. This I presumed was because of the very small quantity in the globe, and also because the knife was entered through the leucoma. A new pupil was now seen at the edge of the iris, much less in size than I expected, the iris having stretched on before the knife, in the attempt at incision. It was about half a line in diameter, and somewhat irregular. The patient said he could see the objects moving about him.

On the second day he had had no pain, but some soreness in the globe. The pupil still remained. The patient went on from this time without any trouble or accident, and was discharged on the 23d of July, with a small but clear pupil; the eye still a little too irritable to use his sight freely. On the 17th of September he returned to see if his vision could be improved. He had supported himself by work during the summer, but found it difficult to distinguish objects on the ground. Thinking his sight might be improved by glasses, I supplied him with a lens of four-inch focus, with which he could read large letters; distinguish the signs across the street, and count the spokes in the wheels of carts at a little distance.

I preferred to rest satisfied with this degree of vision, rather than risk the loss of it, for which he said "he would not take a barrel of gold."

CASE IV.—John Everett, from Templeton, Mass., 45 years of age, was admitted October 7th, 1840. His sight failed him about three years before his application, so that he could not see to read. At his admission he could not see a lamp across the room, nor define the windows. He had cataracts of both eyes, of a bluish-white appearance. The pupil of the right eye was regular, that of the left a little irregular. Both pupils dilated, but not actively. They were made to dilate by the use of stramonium. The lens in each eye appeared large and prominent; the conjunctiva suffused and somewhat injected; his face was quite florid. Presuming that the lenses were hard, and fearing to leave them in the globe so disposed to vascularity, I thought it best to remove them. Accordingly, the patient having twice taken a saline cathartic, and having been bled, I operated for extraction of both cataracts on the 16th of July. Both lenses were readily extracted, and found hard and large. No accident followed the operation; the patient did well, and was discharged November 16th, with both eyes easy and quite clear, able to read common print. The right pupil showed some disposition to contract, but was easily dilated by stramonium. He returned again to the Infirmary September 17th, 1841, having lost the sight of the right eye. He had closure of the pupil, confined by an adventitious membrane. The iris was fibrous, and a little lighter in color than the left eye. Having been cupped on the nape of the neck six ounces, and taken a cathartic, I operated for the formation of an artificial pupil on the 22d of Sept., 1841. The patient lying on his back, I supported the upper lid and controlled the globe with the left hand. I then entered the iris scalpel flat, with its cutting edge upwards, through the cornea, about a third from its outer edge towards the centre, passing the knife across the iris and over the centre of the former pupil. I carried it through the iris midway from the centre to the corneal edge, on the inner side, at the same time turning the cutting edge inwards, intending to divide the membrane from that point into and through the natural pupil. Depressing the point for this purpose, I made a back sweep, and seeing a good-sized space made by the knife, I presumed I had fully accomplished my purpose, and withdrew the knife. On doing this, I found that I had cut the edge of the pupil and adherent capsule across the former pupil, making a good-sized pupil by the contraction of the iris. This was occupied and obstructed on the outer part by the white adventitious membrane; the remainder was black and clear. There was also a small point where the knife entered the iris, forming another very small pupil between the centre of the iris and the inner edge. He was able to distinguish the faces of those about him after the operation. There was no escape of aqueous humor at the time or after the operation. The eye was lightly bandaged, and the patient went to bed. No inflammation followed the operation.

On the third day there was a good pupil in the place of the natural one, and the smaller pupil had considerably increased in size. This last continued to increase for ten days; at which time it was a third as large as the natural pupil, leaving only a few fibres between it and the central

pupil. His sight was pretty good with this eye, but he said he saw a black band perpendicularly across every distant object at which he looked. In consequence of this, and the eye being quite free from irritability, I determined to operate again and unite the two pupils into one. This I did on the 11th of October, with the iris knife as before. In doing this second operation, I entered the knife with the cutting edge downwards, and as the patient had no control over the eye and it was drawn convulsively upwards, I was afraid the cornea would be cut too freely, and immediately withdrew the knife. I then secured the globe by the double hook fixed into the albuginea, just above and within the edge of the cornea. This was held by an assistant, and I again perforated the cornea with the iris knife, having the edge upwards. I then easily separated the iris between the two pupils, by a sawing motion of the knife, without further cutting the cornea. This formed one full and free pupil. Although the cornea was thus twice punctured, *there was no escape of the aqueous humor*, nor was there any inflammation to defeat the success of the operation. He was soon able to begin the use of the eye, and was discharged able to read common print, with the eye daily improving in strength and clearness.

From the recital of these four cases for keratoma, it would seem very probable that had the two first been operated for in the manner of the latter ones, they would have been perfectly successful. They were both peculiarly adapted to the anterior operation by simple incision; the iris retaining its contractile power; the globe being sound, and the retina still possessing its sensibility. In all cases of closure of the pupil after the operation for cataract, this mode is to be preferred, as in these cases the lens has been removed or absorbed. In cases where Cheselden's operation would be done, this mode is decidedly the best, as inflicting a much less wound upon the eye and avoiding the ciliary processes; a circumstance almost inevitable in the posterior division. And indeed in all cases where the iris will contract on division, it may more safely and successfully be done than the modes of Baron Wenzel, Janin, Sir W. Adams, Maunoir, and the various modifications on them adopted by other able operators. In many cases, also, I think it may be found a good substitute for the operation for corectomia, as in cases of simple central opacity of the cornea, inflicting as it does a much less injury upon the iris than a removal of a portion of its substance must necessarily produce. It cannot, of course, be done where, from previous iritis, there has been a deposit of lymph upon and in the substance of the iris, rendering it gibbous and uncontractile. But I have thought that in a case of doubtful condition of the iris, I should do this operation as a preliminary step to the further division of the cornea and removal of a portion of the iris; having several times found that in doing Beer's or Gibson's operation, the great difficulty in effecting the mechanical operation was in dividing that part of the iris which lay farthest from the incision of the cornea.

In the severer operations upon the eye, as in extraction for cataract and the operations for artificial pupil, we labor under peculiar difficulties in northern climates, from the deep and protracted inflammations which

attend our more irritable subjects. The difference between these operations upon a Chinaman and a New Englander, by hands equally skillful, is hardly to be estimated by one who has not seen or known its effects upon the two classes of temperaments. The increased difficulty of accomplishing the operation with success on northern subjects, is a sufficient reason for making any suggestion public which may in any case lead to a more happy result.

Boston, Nov. 16, 1841.

ORTHOPEDIC INFIRMARY.—SURGICAL OPERATIONS THE LAST
WEEK BY JOHN B. BROWN, M.D.

REPORTED FOR THE MEDICAL JOURNAL BY BUCKMINSTER BROWN.

LATERAL CURVATURE.—The subject of this operation was a young lady, aged 19, naturally of a good constitution, but rendered feeble and nervous by the deformity of the spine.

Dr. Brown did not perform this operation in a manner precisely similar to that described by the European surgeons. He made the puncture on a line with the last dorsal vertebra, carrying the knife, on its flat side, between the integuments and muscles, nearly to the spinous process of the same vertebra. He then turned it, and divided the longissimus dorsi transversely; again turning the instrument, he run it down near to the spinous processes, for the space of two inches, and then up along the course of the spine two inches, dividing the whole of the spinal attachment of the serratus posticus inferior, making a subcutaneous longitudinal incision of four inches, involving of course a division of the attachments of the latissimus dorsi at these points; all of which was done through one cutaneous puncture. There was no bleeding of any consequence—probably not more than a tea-spoonful. A small piece of adhesive plaster was applied over the puncture, which being secured by a compress and roller, the young lady walked to her bed.

The deviation between the shoulder-blades, which previous to the operation was three inches, was reduced in four days to one and a quarter inch. Extension having been applied by means of the inclined plane used in this Institution, the lumbar curve has entirely disappeared, and she has gained one and a half inch in height.

KNOCKED KNEES.—A boy, 6 years of age, was brought to this Infirmary, with both legs badly deformed. He had never been able to bring his feet together. Each lower leg formed an angle outwards of 30 degrees with the thigh, and the tibia of each leg was much bent anteriorly—particularly the left. The biceps and external lateral ligament were divided subcutaneously in each leg, and apparatus constructed for the purpose applied. In four days the legs were brought on a natural line with the thighs. The apparatus used in this instance is calculated not only to correct the deformity of the knees, but also to straighten the tibia. Dr. Brown's first intention has been already attained; the possibility of fulfilling the last remains to be proved. It was truly astonishing to observe the results following (even a few moments after the operation) the

division of those fibres which had by their contraction produced so frightful a deformity.

CONTRACTED TOE.—A young lady of 16, with the second toe of left foot doubled upon itself—particularly in walking. Dr. Brown divided the flexor of this toe, and it was immediately restored to its normal position.

PES EQUINUS VALGUS.—A young man, 19 years of age, afflicted with this deformity from birth. In this instance a subcutaneous division of the peroneus longus and brevis was all that was considered necessary at the present time, as previous to his entering the Infirmary the tendo-Achillis had been twice divided. This was accordingly done on Saturday, Nov. 13. There is reason to apprehend that there exists in this case a paralysis of the antagonizing muscles, which of course, if such be the fact, will prolong the process of cure.

If these hasty sketches, Mr. Editor, should be considered worthy of publication in your valuable Journal, and should my health permit, it will give me pleasure, from time to time, to report such cases of interest as may come under my observation, while acting as assistant in this Institution.

BUCKMINSTER BROWN.

SULPHURETTED HYDROGEN IN THE WATERS OF AFRICAN RIVERS.

To the Editor of the Boston Medical and Surgical Journal.

DEAR SIR,—I have received a letter from Dr. Jona. Pereira, F.R.S., &c., of London, author of the largest and most approved work upon materia medica of modern times, in which, among a great variety of other interesting matters, he has given an account by Professor Daniell, Foreign Secretary of the Royal Society, &c., of the generation of sulphuretted hydrogen at the mouths of rivers on the western coast of Africa, and other places, in sufficient quantity to destroy the copper sheathing upon vessels anchoring on that coast, and also engendering severe and mortal sicknesses. The Lords of the Admiralty of Great Britain considered the subject of so great importance, that in 1840 they directed the officers of the Royal Navy stationed on that coast to procure bottles of water from the mouths of the principal rivers there, and forward them for analysis. Accordingly, eight or ten bottles of the water from the river of Sierra Leone, the Volta, the Bony, the Mooney, the Gaboon, the Congo, from Cape Lopez Bay, and some other stations, were sent by them to Prof. Daniell, who found in all of them a large quantity of sulphuretted hydrogen gas, and he thinks in sufficient quantity to account for the vast amount of destruction of copper sheathing upon vessels in those waters, and also to account for the deadly sickness which prevails on those shores. A communication was made by Prof. Daniell, in a lecture delivered to the members of the Royal Institution, on the 1st of May, 1841, and published in the London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science for July, 1841. Dr. Pereira, among several other highly interesting pamphlets, has forwarded me this, with the following remark. "My friend, Professor Daniell, has recently shown that the waters on the

coast of Africa are largely impregnated with sulphuretted hydrogen, and to this noxious gas we may, perhaps, ascribe the sickness common on the coast. His paper on the subject is full of interest. He was kind enough to give me several copies for my foreign friends, and I forward you one, thinking you will feel interested in the subject."

I will just give you his analysis of the water from Cape Lopez Bay. The analyses of the other waters are somewhat similar, and this may suffice for an examination of the whole.

"Water from Cape Lopez Bay, taken by her Majesty's brig *Nautilus*, Sept. 23, 1839. The rainy season had commenced. This water smelt very strongly of sulphuretted hydrogen. The sediment in the bottles weighed only 0.1 grain, and consisted of vegetable matter. It contained, per gallon, sulphuretted hydrogen, 11.69 cubic inches; chlorine, 1467.37 grains; sulphuric acid, 115.20; lime, 23.21; magnesia, 41.02; magnesium, 28.44; sodium, 921.60; potassium, a trace; iodine, a trace. Amount of salts from evaporation, 2576.00. Specific gravity, 1026."

The subject in relation to the destruction of the copper upon our vessels which navigate these waters, is of the utmost importance to our merchants as well as to the government. Prof. Daniell observes:

"Of the comparative duration of the vessels in the Royal Navy, I have not been informed; but the evil complained of in the merchant service is well known; and upon inquiry of one of the largest copper smelters in South Wales, he assures me 'that the experience of between thirty and forty years has led his mind to the conclusion that sheathing copper will be as much or more injured on a nine-months voyage to and along the coast of Africa, as by the wear of from three to four years on any other trade.'" From a long series of analyses and observation Prof. Daniell observes, "there can be no doubt of the important fact of the impregnation of the waters upon the western coast of Africa with sulphuretted hydrogen, to an amount, in some places, exceeding that of some of the most celebrated sulphur springs in the world; and of the injurious effect of such impregnation upon the copper sheathing of ships, you will be convinced by the experiments upon the table. Were any further evidence wanting, it would be found in the state of the copper of the *Bonetta*, which lately returned from the coast of Africa, and three sheets were sent to me by the Admiralty for examination.

"Nos. 1 and 2 were pretty uniformly covered on the outside with a green crust; and on the inside, as evenly, with a black crust of equal thickness. They were very thin in parts, and here and there eaten into holes. No. 3 was in a much worse state, very thin and eaten into large holes. In most parts it was easily broken by the fingers; one of the holes, of an irregular shape, measured eighteen inches in length by four and a half in width. This sheet was covered with green crust chiefly, on both sides; but there were evident traces of the black crust on the inner side. Upon analysis the black crust was found to consist of sulphuret of copper, and the green oxychloride of copper. There can be no doubt that the injury to the copper arose, primarily, from the sulphuretted hydrogen.

"That the establishment of this fact is of some importance in a mer-

cantile point of view, I think I shall be able to convince you by two anecdotes which I shall now narrate. Not many years ago a new copper company set up a smelting establishment, and brought their copper to market; some merchants purchased sheathing of them, coppered their ship, and sent her to the coast of Africa. Not many months after she returned to this country in the same state as that of the Bonetta. The merchants said the copper smelters were inexperienced hands and did not know their business; and they brought an action against the company, who defended it. Upon the trial some of the most eminent scientific men of the day gave evidence that there was nothing in sea-water which could produce such rapid decay of the copper, and the jury in consequence brought in a verdict for the plaintiffs. Now contrast this with what has happened to me in the last two months. An eminent copper manufacturer of South Wales, who had heard nothing of the investigations in which I had been engaged, came to me with two samples of copper which he wished me to analyze. The one was of new metal, and the other part of the sheathing of a ship which had just returned from Africa after a voyage of a few months, the copper being in a state of utter decay. He stated that the merchants to whom the vessel belonged had brought an action against him on the plea that the copper was imperfect, and he wished for my evidence upon the subject, as he well knew that the copper was perfectly good. Instead of entering upon the analysis, I gave him a copy of my report upon the waters of the western coast of Africa, which he sent to the merchants, and nothing further has been heard of the action.

"But it may perhaps be said that little good will result from pointing out the evil, unless we are prepared to propose some remedy for it. I think the remedy is certainly within our command. The principle of protection proposed by Sir H. Davy is quite applicable to it, with some additional precautions suggested by his newly discovered destructive agent, which had escaped his notice. His experiments were conducted principally with zinc and iron as the active elements of protection, and he was led ultimately to the adoption of cast iron, 'as the substance which is cheapest, most easily procured, and likewise most fitted for the protection of the copper.' But this is not the case with regard to sulphuretted hydrogen; for you will see by reference to the experiments upon the table, copper is more acted upon by this substance than iron, the latter being protected by the former, and the fact is that a piece of iron attached to copper increases the corrosion of the latter. Zinc, on the contrary, protects the copper not only from the action of the chlorides in sea-water, but from the sulphuretted hydrogen. I have long been of the opinion that voltaic protection in the navy was much too lightly abandoned. This abandonment arose from what might be called over-protection, by which the attachment of weeds and zoophytes to the ships' bottoms was found to be encouraged. Earthy deposits were formed, and to these weeds and shell-fish attached themselves.

"The remedy for this appears to me to be obvious; instead of keeping the protectors always in contact with the copper, let them be insulated, and let them be brought into metallic contact when occasion may

require. This might readily be done by means of a bolt or bar forming in one position a continuous conductor between the two metals, and in another breaking the connection; this might always be at the command of the proper officer of the ship. Nothing could then be easier than to throw off the protection when the ship is in harbor or in situations peculiarly liable to deposits; or to restore it upon going to sea, or arriving in latitudes where sulphuretted hydrogen might be found to exist. But the protection should always be of zinc, which would preserve the copper not only from the effects of sea-water generally, but from the more destructive agency of sulphuretted hydrogen, which I shall soon give you my reasons for concluding not only prevails upon the western coast of Africa, but in other situations where it has never yet been suspected. Indeed I incline to believe that it would only be found necessary to use protection in sulphuretted waters, and that the action of the chlorides alone might not be more than sufficient to preserve the copper from deposits.

DISEASES ON THE COAST OF AFRICA.—Although the above subject, Mr. Editor, is extremely interesting, if not invaluable to the commercial world, it may not be of so much importance to physicians as the diseases generated by this pestilential gas. Prof. Daniell observes, "When this matter was first brought under my consideration, I was surprised that the nauseous smell which must necessarily be evolved from water impregnated with this gas at so high a temperature as that of the equinoctial regions, had not been noticed. I have in consequence turned to some of the accounts of the late travels in Africa to seek for evidence upon the subject; and in the narrative of an expedition into the interior of Africa, by the river Niger, by Magregor Laird and R. A. B. Oldfield, I found the following important observations:—

"The principal predisposing causes of the awful mortality, were in my opinion the sudden change from the open sea to a narrow and winding river, the want of the sea-breeze, and the prevalence of the deadly miasma, to which we were nightly exposed from the surrounding swamps. The *horrid sickening stench* of this miasma must be experienced to be conceived; no description of it can convey to the mind the wretched sensation that is felt for some time before and after day-break. In those accursed swamps, one is oppressed not only bodily, but mentally, with an indescribable feeling of heaviness, languor, nausea and disgust, which requires a considerable effort to shake off.' Now these observations were made in the very locality from which some of the first waters I examined were taken, and nothing more is wanting to identify the cause of the rapid decay of the ships' copper with that of the mortality of the climate. It has been experimentally found that so small a mixture as a fifteen-hundredth part of sulphuretted hydrogen in the atmosphere acts as a direct poison upon small animals, and the sensations of languor and nausea, described by Mr. Laird, are exactly those which have been experienced by persons who have been exposed to the deleterious mixture in small quantities. The symptoms occasioned by breathing the gas in a high state of concentration are well known to medical men. Now, can it be deemed at all improbable, that an agent which is capable of acting

with this severity as a direct poison, when mixed in no very high proportion with the atmosphere, should in still less quantities greatly aggravate symptoms of morbid action, which may possibly have their origin in other causes. The close investigation which I have given to the subject more and more convinces me that the worst cases of *malaria* are generally connected with the presence of sulphuretted hydrogen."

Hear what he suggests on this subject in relation to New York, Charleston, &c. "Is it not worthy of the most exact inquiry whether the fevers which periodically afflict the cities of New York and Charleston, in America, may not be connected with the mixture of animal and vegetable substances with the sea-water in their lower districts, where they usually originate; and whether an attentive examination will not prove that the same impregnation of sulphuretted hydrogen, which we have established upon the African coast, exists at the mouths of the vast rivers of the American Continent. Indeed I have been informed by an officer, high in the naval service, that during the war instances of the rapid decay of ships' copper, similar to that upon the African, were noticed upon the West-Indian station. And here again it may be asked, as in the case of the copper upon ships, can science indicate a remedy, as well as point to the disease? And again I would reply that by furnishing an easy method of detecting the evil, she furnishes you with timely warning to fly from the infected region. No vessel should be allowed to cast anchor or linger in sulphuretted waters. But if paramount duty should oppose itself to such a course, we have a certain remedy to propose. Plentiful fumigations of chlorine would infallibly prevent the deleterious effects; and the antidote is at once cheap, and incapable, under proper management, of producing any injurious effects to counterbalance its advantages. The Lords of the Admiralty have received these suggestions with indulgence, and have given instructions to their cruisers upon the African coast to test the waters at regular intervals. They have also abundantly supplied the African expedition with the means of chlorine fumigation; and I have the gratification of knowing that the views I have now had the honor of submitting to you have tended to give confidence not only to the gallant band who have devoted themselves to one of the most disinterested enterprises which ever emanated from pure Christian charity, but to the numerous friends who wait the result with anxiety."

I have now, my dear Sir, given you the outlines of Prof. Daniell's most valuable paper, and I firmly believe it must be highly gratifying to your readers. Dr. Pereira also mentioned to me in his letter that he feared that the Edinburgh philosophers had gone mad on the idea that a young chemist there had succeeded in converting *carbon* into *silicon*. (See some account of it in the London Medical Gazette for June, 1841.) The doctor believes that some error has been committed. Since he wrote me I have ascertained that the last London and Edinburgh Philosophical Journals show that the Edinburgh chemist was mistaken.

Deerfield, Nov., 1841.

I am, dear Sir, yours respectfully,

STEPHEN W. WILLIAMS.

BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, NOVEMBER 24, 1841.

MEDICAL FORMULARY.*

BENJAMIN ELLIS, M.D., formerly Professor of Materia Medica and Pharmacy in the Philadelphia College of Pharmacy, was the author of this work, in its original form. This is the sixth edition. Since the death of Dr. Ellis, Dr. Morton, the present editor, who assisted in preparing two editions in the lifetime of the author, has given it all the completeness that his position, rare opportunities, and learning, so well enable him to give to a work of this kind. The preface expresses the object and utility of having prescriptions ready made, better than we can do it. "The elegant and judicious formation of prescriptions, is one of the difficulties which the young practitioner in medicine is obliged to encounter. While a student, he is compelled, from circumstances under which he is placed, to confine his attention to the leading principles of the science. Consequently, the minor points (and the art of dispensing medicine is one of them) are postponed to that period when he shall have undertaken the practical duties of his profession. To obviate, in some measure, the inconvenience which the graduate at first experiences, the volume now offered to the public was undertaken and executed." The prescriptions, which are very numerous, and suited to almost all conditions and manifestations of disease, are methodically arranged under emetics, cathartics, diuretics, &c. &c., in a perfectly convenient form—and are likely to be quite as beneficial to veteran practitioners, as to new beginners. The volume embraces a large amount of matter, which we have examined and re-examined, with much satisfaction. We know more of Dr. Morton than of Dr. Ellis; and because the former holds the labors of his late lamented friend in such high estimation, we know for a certainty, aside from other unquestionable evidence to the same effect, that his medical formulary must be good. Copies may be found at Mr. Ticknor's, Washington st.

Vermont Asylum for the Insane.—Dr. Wm. H. Rockwell, the excellent superintendent and medical officer of this Institution, made his annual report to the Legislature in October. The expenses of the Asylum for stores, provisions, salaries, furniture, &c. &c., for the year ending Sept. 30, were only \$11,549 13. The income in the same period, for the board of patients, was \$11,839 26—which shows how admirably the doctor manages the financial affairs of the hospital. Patients have been there from Vermont, 83; Maine, 1; New Hampshire, 28; Massachusetts, 10; New York, 39; Georgia, 1; Louisiana, 1; Iowa, 1; Bermuda, 1—total, 165. During the year just closed, 84 new patients were admitted. Recovered, of all the cases discharged the first year, 58—47 per cent.

* The Medical Formulary: being a collection of prescriptions derived from the writings and practices of many of the most eminent physicians in America and Europe. To which is added an appendix, containing the usual dietetic preparations, and antidotes for poisons. The whole accompanied with a few brief pharmaceutic and medical observations. By Benjamin Ellis, M.D., &c. &c. Sixth edition, revised and extended by Samuel George Morton, M.D. Philadelphia: Lea & Blanchard, 1842. 8vo. pages 362.

"We have," says the report, "had no prevalent sickness, but we have not been exempt from that degree of mortality which necessarily attends all similar institutions. We have had but four deaths, three of whom were of our incurable class, and one was 71 years of age." From the very establishment of this Asylum, we have been gratified with the prudent, vigilant and scientific accuracy with which it has been conducted. It was honorable to the State to create it—and it was a happy circumstance that so suitable a person was selected to control its destiny.

Respirators.—These very useful instruments, which have met the entire approbation of the most distinguished medical men of Europe and America, may be had in this city of our friend Dr. Bowditch, in Otis place. He has them of all prices, as may have been seen stated in an advertisement last week, which is of consequence to the purchaser, since an impression is abroad that the respirator is very costly. Those who have irritable lungs, or who have a cough, liable to be aggravated by exposure to the keen air of our northern winters, would often find advantage in availing themselves of this valuable mechanical contrivance. Consumptive persons, especially, would derive peculiar benefit from them. In fact, a person with the best of lungs finds the respirator an admirable affair in going from the house to the open air, at this particular season of chilling winds and frosts.

Medical Graduates.—A catalogue of the Berkshire Medical School, the lecture term of which closed a short time since, is published. The whole number of students was one hundred and three. Forty-five were on their second course, and fifty-eight on the first. Twenty-two were graduated with the degree of M.D. Their names are as follows: Daniel H. Batchelder, William W. Billings, Philip Brown, Jr., Henry C. Chapin, Francis H. Chase, William Smith Childs, William Ellis Coney, Henry Carpenter, Jr., James Green, Jonas Cowdrey Harris, Duane A. Holden, Ephraim Augustus Hyde, Jonathan Mann, Thomas E. Montgomery, Luther Rice Palmer, Gilbert T. Pearsall, Joel Peets, Franklin D. Pierson, Selden Crawford Preston, Alfred Sears, Frederick Reed Stickney, Josiah Trow.

Suppression of Quackery in Canada.—That contemptible travelling quack, Williams, known as the great foreign *eye doctor*, and one of the grossest impostors, was bound over at Kingston, Upper Canada, a short time since, in the sum of £50, in two securities of £25 each, to appear at the next Court of General Quarter Sessions of the Peace, to answer to a charge of practising physic and surgery without license. The eye-afflicted citizens of Boston will remember this man as long as they retain a recollection of anything—for they were wofully duped. Quite an army might be collected in the different cities, on whose pockets the ex-oculist of the King of the French and the King of Belgium, wrought more tangible effects than on their diseased optics.

Homœopathic Books.—We have been reminded that Jahr's Manual, spoken of last week, is on sale at Mr. Otis Clapp's, in School street, where

as will be seen by an advertisement in this week's Journal, nearly if not quite all the publications of the new school of practitioners are to be found. If the dealers in these works would furnish us with copies of such treatises as emanate from the homœopathic corps, they would be invariably noticed in the Journal.

Ophthalmic Surgery.—Readers are referred to some curious and important cases, communicated by Dr. Jeffries, to be found in this week's Journal.

Medical Miscellany.—At the last advices, Vicksburg was still scourged by the yellow fever. It will be recollected that the disease was introduced there by a sick stranger.—Dr. C. C. Chaffee will commence a course of lectures on anatomy and surgery, at Nunda, N. Y., on the 7th of December.—Dr. Hunter, who was dismissed from the Navy, has been again restored—the court martial which dismissed him having been sharply rebuked for an unrighteous condemnation of a good officer.—A very fatal congestive fever, marked by peculiar fatality, has been prevalent in Mexico the past summer, and has swept off a vast many persons of all ages, sexes, and conditions in life.—Mrs. Mary Haskins lately died at Greenwich, Mass., at the age of 100 years and 6 months.—Electro-magnetism has been successfully resorted to in one case, in England, to set the respiratory muscles in action, after the individual had been poisoned by opium. Although the stomach had been carefully cleansed by the pump, the patient could not have been re-animated, had it not been for the happy application of this new agent, administered by a very small machine.—The cholera is said to have appeared in Bristol, Eng.—In St. Augustine, Florida, the physicians have issued a card, saying that the town is healthful, and, moreover, that only eight cases of fever terminated fatally in that place, last season.—Dr. Chauncy, of Philadelphia, who was sent to the State Prison, a while since, for procuring an abortion, has been pardoned by Gov. Porter.—In 1840, the deaths in Austria were 659,840, being 9501 more than the preceding year. The births exceeded the deaths by 177,200. Causes of death, among others, were—861 suicides; 53 by hydrophobia; 473 by murder; 5369 by accident; and 28 by public execution.

TO CORRESPONDENTS.—The communications of Drs. Fisher, Hinckley and Welch, were received too late for this No. of the Journal. Other favors are also on hand.

DIED,—In Hyde Co., N. C., Jonathan Robeson, M.D., 25.—At Mineral Springs, Florida, Dr. Ruglin, shot by an Indian at a house where he had called.—At Rockport, Mass., Dr. Manning, 80.

Number of deaths in Boston for the week ending Nov. 20, 34.—Males, 16; Females, 18. Stillborn, 2. Of consumption, 5—diarrhea, 1—burn, 1—infantile, 1—croup, 3—dropsy in the head, 1—dropsy, 1—scarlet fever, 2—inflammation on the brain, 2—fits, 1—intemperance, 1—inflammation of the bowels, 1—bowel complaint, 1—puerperal peritonitis, 1—canker, 1—dropsy on the brain, 1—old age, 1—apoplexy, 1—dyspepsia, 1—dysentery, 1—disease of the heart, 1—lung fever, 1—inflammation of the lungs, 1—scrofula, 2—hemorrhage, 1.

TO PHYSICIANS.

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Nov. 24—3t

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Chelsea, September, 1841.

Sep. 8—copf.

GEORGE W. OTIS, JR.

HOMŒOPATHIC BOOKS AND MEDICINE CHESTS.

OTIS CLAPP, No. 10 School street, Boston, has for sale, Currie's Practice of Homœopathy; Everest on do.; Broocke on do.; Dunsford's Practical Advantages of do.; Dunsford's do. Remedies; Quin's Pharmacopœia; Simpson's do.; Hahnemann's Organon; Jeane's do. Practice; Jahr's Manual; Hering's do., or Domestic Physician; Rouff's Repertory; Currie's Domestic do.; Broocke's Diseases of the Alimentary Canal, and Constipation, with notes by Dr. Humphrey. Also small works for popular use by Croserio, Eustaphie, Everest, Green, Herring, Dea Guidi, &c. Medicine Chests for sale as above. J. C. is agent for the Homœopathic Examiner, by A. Gerard Hall, published monthly in New York. My 12—

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DR. HAYNES's instrument, which is recommended by the profession generally, may now be had at the Medical Journal office. Price, with perineal strap, only \$4—without, \$3.50. By addressing the publisher, No. 184 Washington street, physicians may be readily accommodated. A. 19

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